

ABSTRACT

An apparatus for preheating particulate material in which the particulate material is transferred from one or more upper storage bins to a circular lower chamber that has an outer, essentially annular, portion which serves as a gas flow passage. The particulate material is directed from the feed bin or bins into a plurality of essentially vertical cylindrical feed cassettes via intermediate feed ducts. The lower chamber has a flat roof which is in contact with the bottom portion of the vertical feed cassettes. The vertical feed cassettes are approximately evenly spaced on top of the outer perimeter of the flat roof. The particulate material is preheated in the annular flow passage by hot kiln gases flowing in countercurrent heat exchange relationship with the particulate material. Each feed cassette is completely segregated from its adjacent cassettes, and the bottom of each cassette is positioned over a hole in the flat roof of the lower chamber to thereby enable the particulate material to fall from each cassette into the annular flow passage section of the lower chamber. A plurality of particulate discharge mechanisms, the number of which correspond to the number of cassettes, discharges particulate material that has fallen into the annular flow chamber from the overhanging cassettes into a material outlet located in the floor located at the center of the lower chamber.